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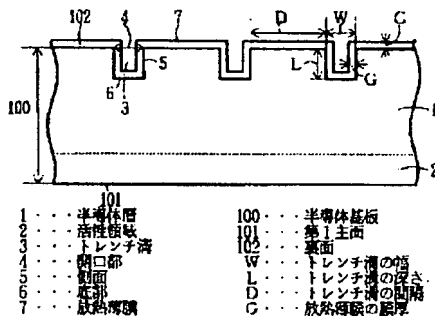
(54) SEMICONDUCTOR DEVICE

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(57) Abstract:

PROBLEM TO BE SOLVED: To provide a semiconductor device having an improved heat radiation efficiency on a rear face.

SOLUTION: An active region 2 is formed in a surface layer of a first principal plane 101 of a semiconductor substrate 100, and trenches 3 are formed in a rear face 102 which is a second principal plane, to turn the rear face 102 uneven (concave where trenches are formed and convex where trenches are not formed). On the uneven rear face 102, a heat radiation thin film 7 formed of such a material as to have a larger coefficient of thermal conductivity than the semiconductor substrate 100 (i.e., a thin film for heat radiation) is formed along the uneven surface. A ratio of the depth L to the width W of the trenches 3, that is, an aspect ratio (L/W) is set to 1 or above and 50 or below. The width of the trenches 3 and a distance D between the trenches 3 are set between 1  $\mu\text{m}$  and 100  $\mu\text{m}$ .



1...半導体層  
2...活性領域  
3...トレンチ溝  
4...開口部  
5...側面  
6...底部  
7...放射薄膜

100...半導体基板  
101...第1主面  
102...裏面  
W...トレンチ溝の幅  
L...トレンチ溝の深さ  
D...トレンチ溝の間隔  
G...放射薄膜の膜厚